TULARE COUNTY
FIRE DEPARTMENT

907 West Visalia Road, Farmersville, CA 93223 - Phone (559) 622-7600 - Fax (559) 622-7600

Charlie Norman
FIRE CHIEF

FIRE SUPPRESSION WATER STORAGE TANKS

The following are the requirements for installation of water storage tanks in the foothills, State Responsibility Area (SRA), wildland urban interface areas and local response areas that do not have pressurized water hydrant systems within Tulare County. Please contact our Department if there are any questions PRIOR to installation. While all of these points may not apply to your situation, it is for your information and review. Violations of the following are enforced under the authority of the California Fire Code (CFC), Public Resource Code, National Fire Protection Association (NFPA) and in accordance with the Tulare County Ordinance Code.

1. All residential and commercial structures shall meet NFPA 1142 fire flow requirements or as specified by the Fire Department. Water Storage tanks shall meet NFPA 22 requirements.

   Exceptions To:

   a) This shall not apply to pole barns, detached carports, and or other small non-enclosed structures.

   b) Structures falling within this exception shall not have more than two sides enclosed and shall not be located within 25 feet from adjacent structures.

   c) R-3 occupancies which are single story with a square footage at or less than 2,499 square feet; and for R-3 occupancies which are two story, at or less than 2,999 square feet.

   d) Mobile homes shall not have to adhere to NFPA 1142

2. **Tank Connection**:

   a) Connection to the tank shall be located not less than 8" from the bottom of the tank.

   b) An approved polyurethane or brass shut-off valve shall be located at the tank.

   c) There shall be an elbow attached to the interior of the tank descending to no less than 2" from the bottom of the tank.

3. **Pumper Connections**:

   a) The Fire Department connection (FDC) shall be equipped with a 4-1/2" male coupling. (National Hose Thread) NFPA 24-5.9.2.2

   b) The FDC shall be placed at least 40' from the building and no more than 150' from furthest portion of the structure.

c) The FDC shall not be less than 24" or more than 36" from final grade.

d) The FDC and piping shall be supported in an approved manner. NFPA 24-9.1.2

e) FDC shall be protected by barrier posts if deemed necessary. NFPA 24-7.3.5

4. **Materials NFPA 1142-8.3.2 & NFPA 24-10.1.5**:

a) Piping shall be listed for fire protection service and comply with AWWA standards. Piping shall be designed to withstand a working pressure of at least 150 psi. (PVC minimum of Schedule 40 for underground sections only.)

b) All joints and fitting shall be approved and listed.

c) Caps shall be required and may be of brass or polyurethane. They must be properly secured and arranged for easy removal by Fire Department. NFPA 24-5.9.1.4

d) Underground piping, if applicable, shall be no less than 6" in diameter. NFPA 24-5.2.1

e) All bends and changes in direction of the piping shall be supported with thrust blocks. (If using Schedule 40 PVC pipe for the underground, the thrust block must completely surround the galvanized elbow joint to prevent movement.)

5. **Access**:

a) The tank and connections shall be accessible to all fire apparatus at all times (all weather road). Location shall not interfere with nearby objects including buildings, fences, posts or other obstructions. There shall be at least a 3' clearance in all directions and the connection shall face the engine access as directed by the Fire Department.

b) The FDC shall be located within 8 feet of fire apparatus access fronting property and/or building.

c) All roadways shall have an unobstructed width of no less than 20' easement with an all-weather surface, exclusive of shoulders, capable of supporting fire department apparatus and 13' 6" in vertical clearance. CFC 503.2.1

6. **General requirements**:

a) Plans shall be submitted to Fire Department prior to installation. These plans shall include piping details (class & type), lengths, joint information, size and location of water supply, Type & location of valves, FDC locations & measurements. **All Water Tanks need to be on an approved foundation, a set of foundation plans need to be provided and approved by the building department.** NFPA 24-8.1 – 8.2.2

b) Pipe depth shall be at least 3 feet (36 inches).

c) A reliable means of automatically maintaining the water level in the tank shall be provided. (This is normally by means of a float valve)

d) Refill piping shall not be less than 3/4" galvanized pipe from the top of the tank.

e) There shall be no shut-off valves between domestic and fire protection.

f) Weeds, grass and similar vegetation should be prevented throughout entire yard.

g) There shall be a 24" x 24" inspection hatch on the top of the tank.

h) There shall be a ladder available for all inspections.

i) There shall be a vent of 4", equivalent to the outlet size, located on the top of the tank. (This vent shall be protected from invasion from excessive dirt and/or living things.)

j) A Floater shall shut off at least 2" bellow the water line (see schematic)

7. **Testing**:

a) Provide copy of **Contractor's Material & Test Certificate** furnished by the installing contractor.

b) Trench shall be backfilled between joints before testing to prevent movement of the pipe. All joints shall be visible during testing.

c) All new service mains shall be tested hydrostatistically at not less than 50 psi for 2 hours.

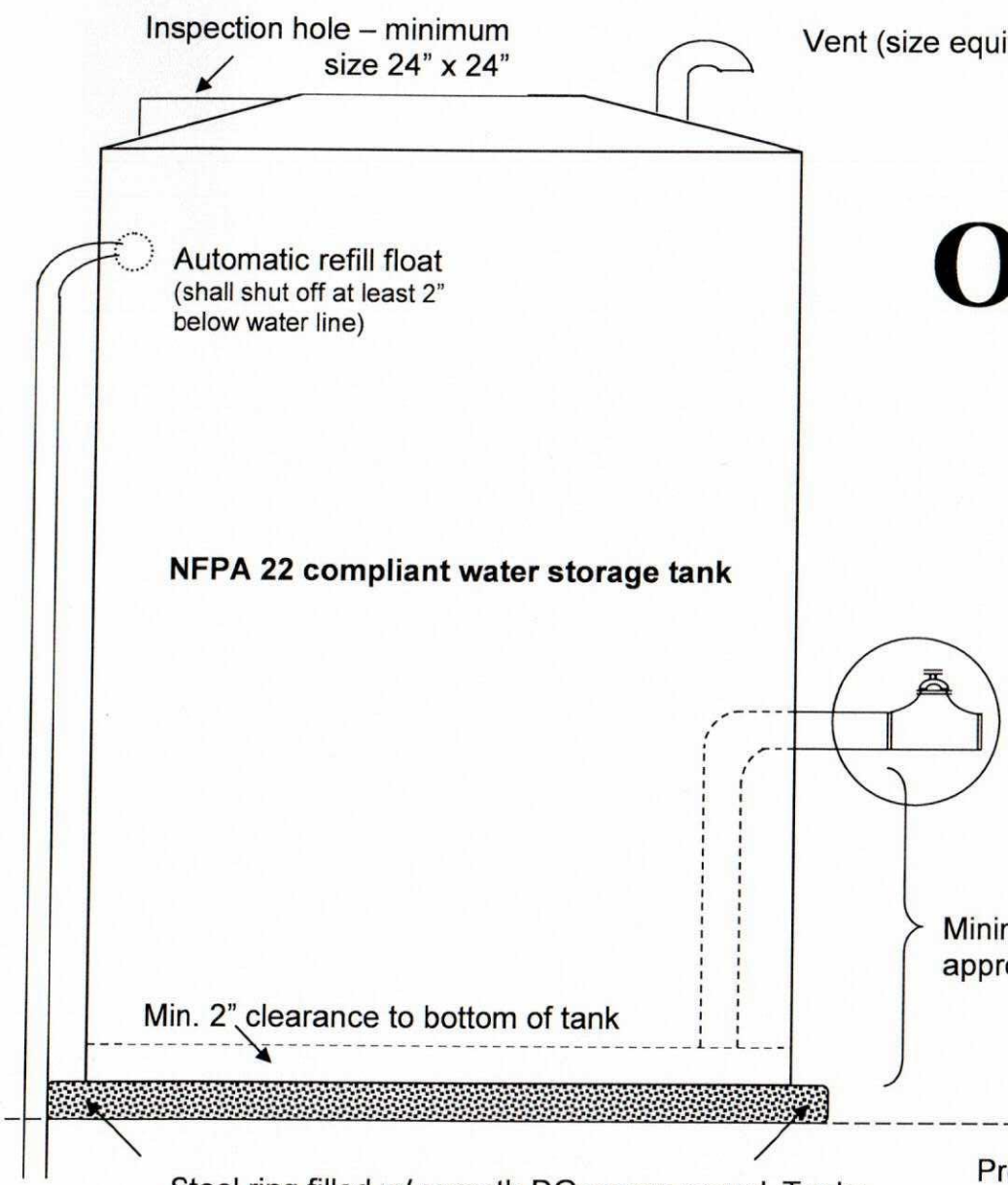
d) Testing shall be done in the presence of the Fire Department.

e) All control valves and FDC's shall be fully opened and closed under system pressure.

Contact the Fire Department at 622-7600 for the following:

1.	Preliminary inspection -	To approve the tank location. To discuss other fire safe requirements and answer questions.
2.	Second inspection -	To check clearances of connections Fire apparatus access and road conditions Pressure test of underground ***Need ladder and access to verify location of interior piping And float valve (NOTE: Tank is to be empty!)***
3.	Final inspection -	Flushing of line, checking the water refill capabilities, make sure tank is full of water, inspect remaining hardware.

Option 1 – connection at the tank



4" galvanized nipple
4" approved polyurethane or brass gate valve
4 ½" (I.D.) National Hose Thread (NHT) brass adapter
4 ½" (I.D.) cap – brass or plastic

Minimum 24", maximum 36" distance from finished grade to bottom of approved valve.

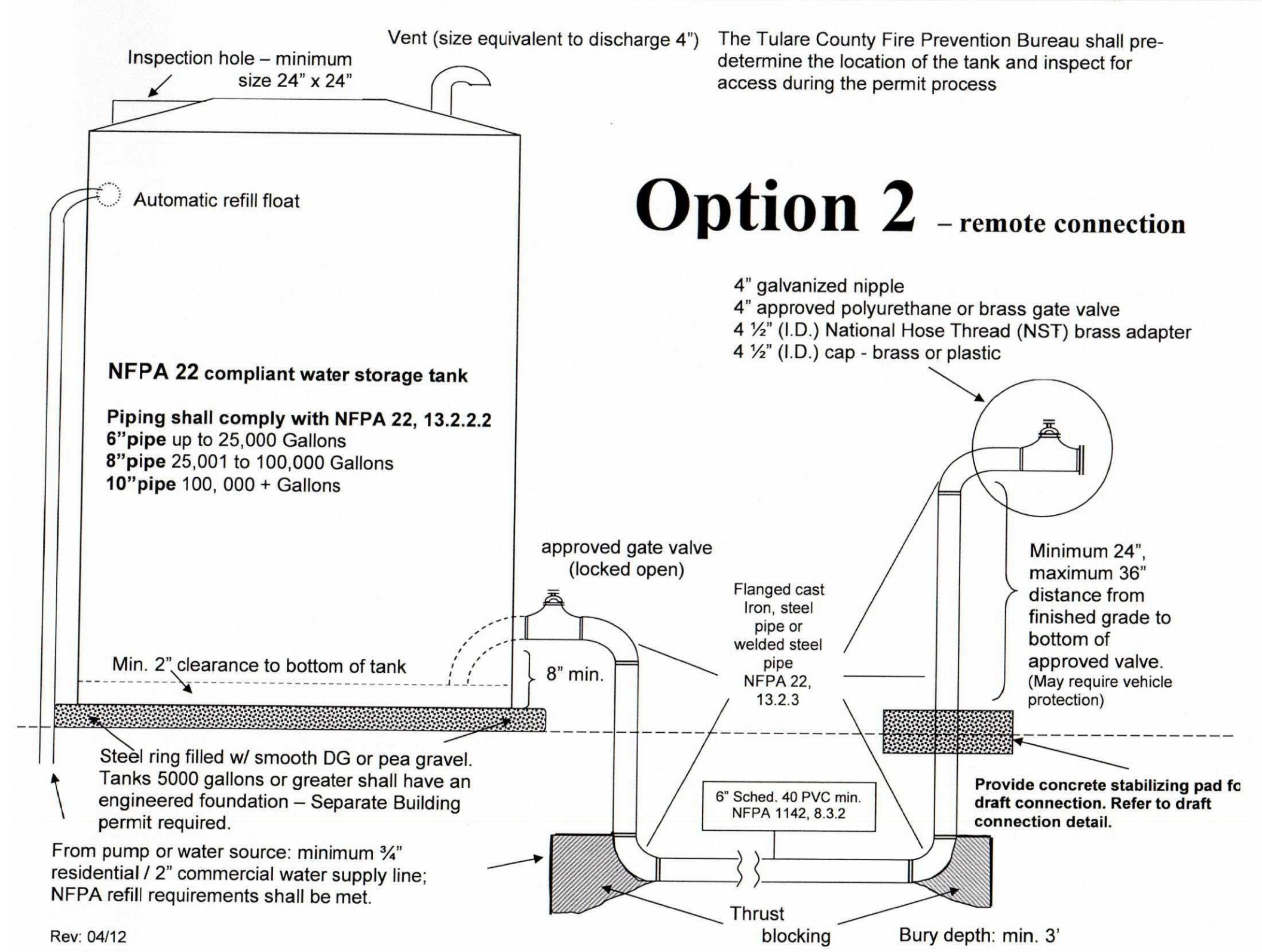
Steel ring filled w/ smooth DG or pea gravel. Tanks 5000 gallons or greater shall have an engineered foundation – Separate Building permit required.

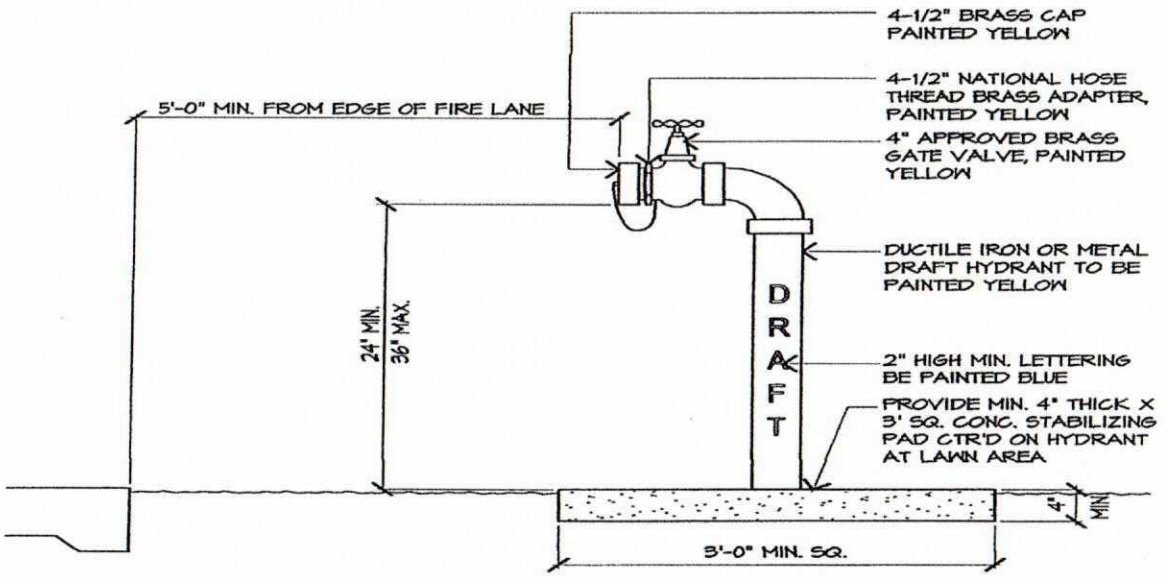
From pump or water source: minimum ¾" residential / 2" commercial water supply line NFPA refill requirements shall be met

Provide proper support for Fire Department Connection (when required).

The Tulare County Fire Prevention Bureau shall pre-determine the location of the tank and inspect for access during the permit process.

Rev: 11/16


Vent (size equivalent to discharge 4")
The Tulare County Fire Prevention Bureau shall pre-determine the location of the tank and inspect for access during the permit process
Inspection hole – minimum size 24" x 24"
Automatic refill float
Option 2 – remote connection
4" galvanized nipple
4" approved polyurethane or brass gate valve
4 ½" (I.D.) National Hose Thread (NST) brass adapter
4 ½" (I.D.) cap - brass or plastic
NFPA 22 compliant water storage tank
Piping shall comply with NFPA 22, 13.2.2.2
6"pipe up to 25,000 Gallons
8"pipe 25,001 to 100,000 Gallons
10"pipe 100, 000 + Gallons
approved gate valve (locked open)
Flanged cast Iron, steel pipe or welded steel pipe NFPA 22, 13.2.3
Minimum 24", maximum 36" distance from finished grade to bottom of approved valve. (May require vehicle protection)
Min. 2" clearance to bottom of tank
8" min.
Steel ring filled w/ smooth DG or pea gravel. Tanks 5000 gallons or greater shall have an engineered foundation – Separate Building permit required.
6" Sched. 40 PVC min. NFPA 1142, 8.3.2
Provide concrete stabilizing pad fo draft connection. Refer to draft connection detail.
From pump or water source: minimum ¾" residential / 2" commercial water supply line; NFPA refill requirements shall be met.
Thrust blocking
Bury depth: min. 3'
Rev: 04/12

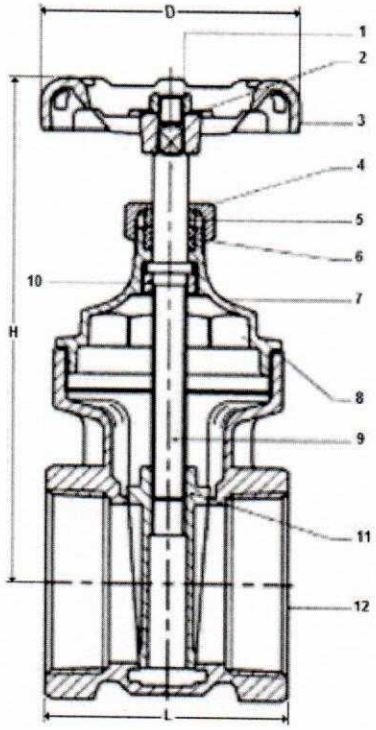


DRAFT CONNECTION DETAIL

SCALE: 3/4" = 1'-0"

514T or 514 C Full Port Gate Valve

514 T Full Port Gate Valve



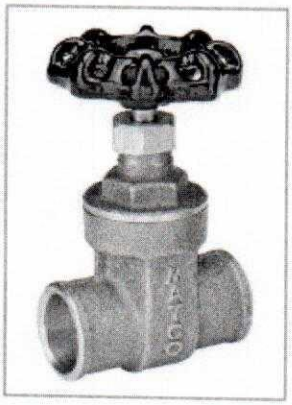
DIMENSIONS

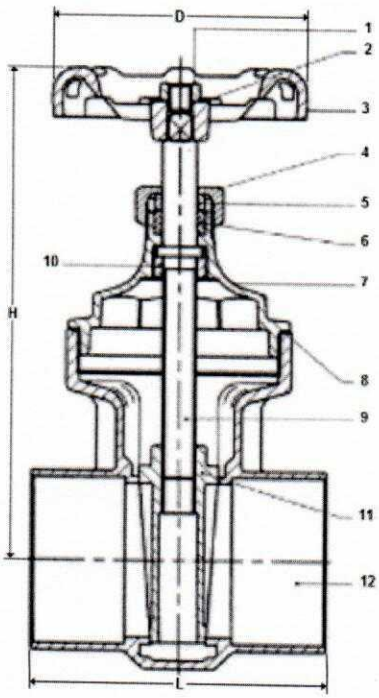
Size	Part #	D	H	L
1/4"	514T01	2.09	2.92	1.71
3/8"	514T02	2.09	2.92	1.71
1/2"	514T03	2.09	2.92	1.71
3/4"	514T04	2.52	3.31	1.81
1"	514T05	2.48	3.90	2.13
1-1/4"	514T06	2.72	4.61	2.25
1-1/2"	514T07	3.15	5.08	2.44
2"	514T08	3.53	5.99	2.70
2-1/2"	514T09	3.98	7.88	3.70
3"	514T10	4.37	8.83	4.02
4"	514T11	5.00	9.89	4.53

MATERIAL SPECIFICATIONS

No.	Part	Material	ASTM Spec
1	Wheel Nut	Hot Rolled	SAE 1010R
2	Name Plate	Aluminum	A1100
3	Handwheel	Cast Iron	JIS ZZ2202
4	Packing Nut	Brass	B16 C36000
5	Gland Ring	Brass	B16 C36000
6	Gland Packing	Graphite	LK 33 NAFG
7	Bonnet	Brass	B584 C85710
8	Packing	Fiber "H"	Non Asbestos
9	Stem	Brass 1/4" - 2"	B16 C36000
		Brass 2-1/2" - 2"	B584 C85710
10	Lock Nut	Brass	B16 C36000
11	Disc	Brass	B584 C85710
12	Body	Brass	B584 C85710

514 C Full Port Gate Valve





DIMENSIONS

Size	Part #	D	H	L
3/8"	514C02	2.09	2.92	1.69
1/2"	514C03	2.09	2.92	1.69
3/4"	514C04	2.52	3.31	2.32
1"	514C05	2.48	3.90	2.72
1-1/4"	514C06	2.72	4.61	2.94
1-1/2"	514C07	3.15	5.08	3.33
2"	514C08	3.53	5.99	3.98
2-1/2"	514C09	3.98	7.88	4.61
3"	514C10	4.37	8.83	5.32
4"	514C11	5.00	9.89	6.37

MATERIAL SPECIFICATIONS

No.	Part	Material	ASTM Spec
1	Wheel Nut	Hot Rolled	SAE 1010R
2	Name Plate	Aluminum	A1100
3	Handwheel	Cast Iron	JIS ZZ2202
4	Packing Nut	Brass	B16 C36000
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6	Gland Packing	Graphite	LK 33 NAFG
7	Bonnet	Brass	B584 C85710
8	Packing	Fiber "H"	Non Asbestos
9	Stem	Brass 1/4" - 2"	B16 C36000
		Brass 2-1/2" - 4"	B584 C85710
10	Lock Nut	Brass	B16 C36000
11	Disc	Brass	B584 C85710
12	Body	Brass	B584 C85710